

Standardizing Ambulatory Care Procedures in a Public Hospital System to Improve Patient Safety

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Abstract

The Medical Center of Louisiana at New Orleans (MCLNO) provides care to primarily indigent and medically underserved patients in Louisiana. The hospital and ambulatory clinics serve as a clinical laboratory for students from schools of medicine, pharmacy, and nursing, and allied health programs. In response to a potential threat to patient safety, an initial review of the dental procedures performed at MCLNO was done, and then a review of all procedures approved for the medical staff credentialing process was performed. The initial findings revealed a lack of standardization of patient flow and process for ambulatory procedures, disparities in perioperative evaluations, inadequate nursing care in the immediate postoperative period, and problems in the environments for performing procedures. A multidisciplinary team was assembled to review all procedures and develop standardized processes to improve patient safety for ambulatory procedures. To determine the appropriate level of care for patients, perioperative evaluations, monitoring and followup, nursing practice standards, clinical practice guidelines, and Medicare ambulatory procedure codes were reviewed. Following review, recommendations were adopted by the Medical Staff's Credentials Committee to update the standard credentials for each department and to grant additional privileges for credentialed members of the medical staff based on training, competencies, and experience.

Introduction

The Medical Center of Louisiana at New Orleans (MCLNO), formerly known as Charity Hospital of Louisiana, is a public hospital primarily serving the indigent and medically underserved patients. This hospital serves as the primary teaching hospital for medical schools of Tulane University and Louisiana State University. Most allied health programs in the metropolitan area train students during clinical rotations at MCLNO. In recent years, more surgical cases have been performed in the ambulatory surgical unit as 1-day stay cases without hospitalization.

Due to recent shortages of clinical staff in anesthesiology, many surgical cases were cancelled or postponed, based upon the availability of clinical staff. Elective cases were cancelled because emergency cases had priority. When clinically appropriate, alternative procedures were done through interventional radiology and endoscopy. In these instances, procedures were moved to clinical areas

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designed for these procedures. The oral and maxillofacial service moved an elective procedure from the operating suites, due to repeated cancellations, to the oral maxillofacial clinic without notifying the clinic staff of the planned procedure, notifying the anesthesiology service of a potential admission to the recovery area, or obtaining informed written consent prior to the procedure in the new location, date and time. Despite all of these breakdowns in the system and potential sources for adverse events related to patient safety, the patient had a good clinical outcome.

While investigating this incident and the ongoing anesthesiology shortage, a multidisciplinary team was developed to review all procedures and identify procedures that could be safely performed in the clinics. Team members included physicians and nurses who represented the following departments: ambulatory clinics, quality management, regulatory compliance, perioperative services, and medical staff. As each specialty was reviewed, ad hoc members included attending physicians, residents and fellows from each specialty service performing procedures in ambulatory clinics.

Problem statement

The initial team was formed to review the process by which the oral and maxillofacial surgery service transferred a case formerly performed in the surgical suites to the procedure area of the dental clinic. This team was approved by the hospital's administrative council, and supported by the ambulatory clinics and quality management departments. Physicians, dentists, nurses, and dental technicians expressed varying levels of comfort in moving these procedures from a higher level of acuity in the surgical suites to a lower level of acuity in the dental clinic. These groups expressed similar concerns, but addressed these concerns very differently. In an effort to validate these concerns and maintain patient safety in the performance of all procedures, the multidisciplinary team was developed.

In the overall review of procedures, the dental clinic was identified as the site performing the most procedures that could be potentially performed in either the operating suites or the dental clinic area. Dental residents and oral surgery residents and fellows were supervised by attending dentists and oral surgeons in the operating suites and the dental clinic. Nursing and dental assistant staffing levels varied, based upon scheduled procedures in this clinic area. However, schedules could be adjusted with 48-hour notice, using a dedicated nursing and technician pool for the dental clinic. Due to staffing shortages in the surgical suites, several minor procedures were cancelled on the morning of the procedure and moved, without prior notification of the clinic staff, to the clinic. This potentially could have resulted in inadequate staffing levels, but the clinic was able to obtain staffing with little notification. The clinic's nursing director, however, did not view this as an optimal scheduling practice and sought to develop a scheduling plan to maintain appropriate nursing and dental technician staffing levels for patient safety.

Since other clinics also had procedure areas, this process was used to review all procedures performed in the entire organization. MCLNO maintains accreditation by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). The regulatory compliance department continues to monitor patient safety and requires participation by employees, members of the medical staff, and students. Each major clinical department of the medical center holds a monthly or bimonthly performance improvement committee meeting. Since the scope of this performance improvement project covered many areas of the hospital, and is not limited to the ambulatory setting, the multidisciplinary team was charged with reporting its findings to each clinical department upon final approval of the recommendations.

Approach

Following the investigation of the initial event, the regulatory compliance department cited a lack of standardization of hospital policies related to procedures in the ambulatory clinics as a source of confusion related to the movement of procedures from the operating suites to the clinics. Additionally, the prior review of the JCAHO 2004 National Patient Safety Goals (NPSGs) by this department, addressed many of the areas of concern related to patient safety that resulted from the movement of this procedure from the operating suites to the dental clinic.¹

Using the NPSGs, hospital policies, ambulatory clinics policies, nursing practice standards, Medicare procedure codes, and medical staff credentials lists as references, all procedures performed at MCLNO were reviewed and designated specific locations of performance. The hospital had previously developed a patient safety plan to implement the NPSGs as a separate compliance activity. This multidisciplinary team used the NPSGs to modify existing policies related to patient safety for the ambulatory clinics. The hospital conducted educational sessions for patient care services departments of the medical center during the first quarter regarding the intent, implementation, and monitoring of the NPSGs. For this clinic initiative, the NPSGs served as a framework for reviewing the procedures and developing the recommendations for ambulatory surgical procedures in the ambulatory clinics. Additionally, the same standards for patient safety at MCLNO were applied to all procedures performed in all patient care areas of the hospital and designated as follows: surgical suites, ambulatory clinics, emergency departments, or hospital rooms (patient's bedside). Procedures were approved for performance in the surgical suites, specialized procedure area, specialized clinic, general clinic exam room, hospital room, emergency department exam area, or emergency department procedure area.

The 2004 JCAHO NPSGs were modified as simple action items for ambulatory clinic procedures to develop MCLNO ambulatory patient safety indicators (Table 1). These modified indicators were used by the multidisciplinary team to develop the recommendations and procedural requirements for the ambulatory clinics.

Table 1. JCAHO-MCLNO ambulatory patient safety indicators

JCAHO patient safety indicators	MCLNO ambulatory procedure patient safety indicators
1. Improve the accuracy of patient identification	1. Patient identification
2. Improve the effectiveness of communication among caregivers	2. Communication
3. Improve the safety of using high alert medications	3. Medication safety
4. Eliminate wrong-site, wrong-patient, wrong-procedure surgery	4. Target surgery
5. Improve the safety of using infusion pumps	5. Infusion medication safety
6. Improve effectiveness of clinical alarm systems	6. Effective clinical alarm systems
7. Reduce the risk of health care acquired infections	7. Strict infection control practices

JCAHO = Joint Commission on Accreditation of Healthcare Organizations
MCLNO = Medical Center of Louisiana at New Orleans

Patient identification

The process for patient identification is the use of plastic armbands with the patient's name, date of birth, medical record, and account number. These armbands are used on all patients in the emergency department, surgical suites, and hospital units. Armbands also are used on patients in clinics where ambulatory procedures are performed. Patients are verified by asking their date of birth and this verification process is used in all units. Periodic survey of these units will continue to maintain compliance with the MCLNO patient identification process.

Communication

Procedures performed in the surgical suites require advance scheduling, including the name of the patient, medical record number, name of the procedure, surgeon's name, and contact information, type of anesthesia, length of procedure, special equipment, pathology requests, blood and blood products, and other general information. This information is required to obtain the correct instruments and equipment, blood and blood products, appropriate complement of nursing and surgical technicians, as well as any special requests for radiological procedures and pathology services during the procedure.

Procedures performed in the ambulatory clinics only required scheduling of the patient—no notification of the clinic's nursing staff of additional requirements prior to the clinic session was required. This lack of communication often resulted in postponing or canceling procedures, based upon the lack of staff and/or equipment. This communication deficit also potentially resulted in delayed diagnosis if a procedure was cancelled by the facility due to specialty supplies being assigned to another clinic or location. Consequently, this prevented optimal resource allocation of both human and capital resources, pharmaceuticals, and other costly health care resources.

Medication safety

All medications used in the clinics are obtained from the hospital pharmacy, which is responsible for maintaining all aspects of the distribution, administration, safety, and monitoring of pharmaceuticals at MCLNO. The pharmacy has fully adopted the JCAHO recommendations regarding avoiding abbreviations for medications, banning the use of concentrated electrolytes in patient care areas, and adopting a universal anesthesia policy throughout the organization. The nursing staff maintains the safety, security, and distribution of medications in the clinic areas. All medications are obtained from the hospital pharmacy through an automated medication distribution system or secured medication rooms in the clinics. Nurses verify written medication orders, administer medications, and monitor the patient for adverse reactions. If an adverse event occurs, the physician is notified for assessment and additional orders, if necessary, and an adverse event form is generated. This process must occur consistently during procedures in the ambulatory areas as well. Levels of anesthesia administered in the clinics include anxiolysis, local and regional anesthesia, moderate and deep sedation. Consistent nursing staffing levels were developed and maintained in all areas administering anesthesia to patients to ensure safe and effective medication administration practices for patients undergoing ambulatory procedures.

Target surgery

The NPSGs goal to eliminate the wrong-site, wrong-patient, and wrong-procedure was modified to target surgery. By identifying and implementing the elements of the plan TARGET (Table 2), patients could make informed decisions regarding surgery and undergo these procedures without increasing their risk for medical error.

This simple strategy was also developed in response to the relatively low overall health literacy level of the patients in this urban environment. By simplifying the information that residents convey to patients, it is anticipated that patients will understand the basic elements of the planned surgical procedure and provide a more informed consent. This error-reduction strategy will also improve communication between the patient and their physicians, and improve the communication among the health care teams that the patient encounters prior to, during, and after his or her surgical or ambulatory procedure.

Table 2. TARGET

T	Tell (the patient their diagnosis)
A	Approach (procedure)
R	Region (location of procedure)
G	Goal (risks, benefits)
E	Evaluate (perioperative evaluation as indicated)
T	Transfer information (to patient care teams)

Infusion medication safety

MCLNO has a standardized process for obtaining, using, and maintaining biomedical equipment, including infusion pumps used in the ambulatory clinics during procedures and as part of clinical care. All nursing staff are trained to use the hospital's current infusion pumps. Competency is documented on an annual basis and whenever new equipment is obtained. In general, infusion pumps are limited to infusions of antibiotics, blood, and blood products in clinics, and to chemotherapy and intravenous fluids in limited clinics and emergency situations. Patient-controlled anesthesia pumps are generally not used in the clinics. The exception occurs when hospitalized patients are seen in clinics with specialty services in the diagnostics and treatment department, and otorhinolaryngology or ophthalmology clinics. In these situations, patients are accompanied by a nurse or placed in a monitored situation in the specialized clinic. Upon completion of the procedure and a brief recovery period, the patient, with their continued perioperative care, is transferred to the originating hospital unit.

Effective clinical alarm systems

Perioperative evaluations are completed on all patients prior to surgical procedures, as dictated by their current medical status. Abnormalities, when identified as part of the diagnostic evaluation, may require expedited review by the patient's provider. Clinical alarm systems are used for laboratory studies, diagnostic radiological studies, and cardiology studies. These systems are in use throughout the organization and have served to guide the development and implementation of similar standards for other diagnostic areas.

There were no clinical alarms for patient procedures in the ambulatory setting. Patients scheduled for elective surgical procedures required perioperative evaluation in the elective admission clinic. This did not exist for ambulatory procedures. Prior to this improvement initiative, patients were simply scheduled for a return clinic visit and the procedure was performed. All patients require perioperative evaluation for procedures, regardless of whether the procedures are located in the operating suites or ambulatory clinics.

Standardized forms were developed, similar to the elective surgical procedure forms for the ambulatory clinics. The practice of dictation of surgical procedures was adopted by the ambulatory clinics for display in the electronic clinical record for patients, with the permanent copy stored in the paper medical record. Residents and attending physicians were trained to dictate the procedure information, review the information, and provide electronic authentication of the record. Training of residents occurred over a 90-day period, and this process was incorporated in the general resident orientation annually.

Infection control

The infection control department monitors all procedures performed in the surgical suites on a regular basis, but procedures performed in the ambulatory clinics were not monitored by the infection control department prior to this

initiative. After this initiative, the clinics performing procedures have adopted regular monitoring and reporting by the infection control department, with additional steps undertaken regarding spacing of clinical equipment to decrease the risk of contamination during the performance of surgical procedures. The infection control process is also used to monitor infection rates following all surgical procedures in any location in the organization. The clinic provides a summary of all surgical procedures performed in the ambulatory clinics in a manner consistent with the information provided for surgical procedures in the surgical suites. The infection control department compiles a list of infections from surgical procedures in the surgical suites and surgical care areas of the hospital, to trend infection rates by surgical unit, patient care area, type of procedure, and surgeon. With the added ambulatory procedure summary from ambulatory clinics, the infection control department will now track all infections following surgical procedures to develop a comprehensive infection monitoring policy as a measurable outcome of this patient safety initiative. In addition, a summary of incident reports is provided to infection control to track any trends in infectious complications of surgical procedures that may not be identified through the usual monitoring mechanisms, e.g., of incident reporting and hospital readmission within 30 days.

Key findings and interventions

The federal government has allocated money to the Agency for Healthcare Research and Quality (AHRQ) to develop national patient safety goals and a national research agenda, to report periodically to the nation, and to fund Centers of Excellence in Patient Safety Research. This commitment to quality and the Congressional mandates of this agency have fostered cooperativeness among other agencies focused on health care, including JCAHO's focus on patient safety. AHRQ has developed a four-element model for health care agencies to plan for patient safety.² The basic elements include identification of the threats to patient safety, identifying and evaluating effective clinical practices for patient safety, dissemination of effective patient safety practices, and maintaining safety vigilance.

Using AHRQ's four-element model, the MCLNO ambulatory clinic procedure review process was developed to cover all essential areas for patient safety (Table 3). Element one, the threat to patient safety, was identified as the relocation of procedures from the surgical suites to the ambulatory clinic procedure areas. This procedure relocation occurred during a time of limited surgical schedules and increasing surgical cancellations as a result of limited surgical suites due to staffing shortages of anesthesiologists, nurse anesthetists, and surgical nurses. Element two required the identification and evaluation of safe practices to provide care. In an effort to provide safe clinical care for ambulatory clinic procedures, the procedures were reviewed and some relocated to clinics with additional patient safeguards to maintain a safe clinical environment. Element three required teaching, disseminating, and implementing effective patient safety practices. This element was satisfied by the development of policies for ambulatory clinic

Table 3. AHRQ and MCLNO ambulatory procedure patient safety elements

AHRQ patient safety elements	MCLNO ambulatory procedure patient safety elements
1. Identify threats to patient safety.	1. Threat to patient safety—movement of procedures from surgical suites to ambulatory clinics.
2. Identify and evaluate effective patient safety practices.	2. Performance improvement team to review all procedures at MCLNO and identify safe and appropriate clinical settings for performance of procedures.
3. Teaching, disseminating, and implementing effective patient safety practices.	3. Review of JCAHO patient safety indicators and adapting to develop MCLNO ambulatory procedure patient safety indicators. Implementation including multiple education sessions of all involved in the care of patients undergoing ambulatory clinic procedures during the perioperative period.
4. Maintaining vigilance.	4. Regular reviews of activities, monitoring of compliance with policies for ambulatory clinic procedures, and infection control surveillance. Periodic education through competency validation process and policy orientation to new employees, residents, faculty, and students.

AHRQ = Agency for Healthcare Research and Quality

MCLNO = Medical Center of Louisiana at New Orleans

JCAHO = Joint Commission on Accreditation of Healthcare Organizations

procedures, and revision of the credential lists for all specialties and clinic procedure lists. The fourth element required organizations to maintain vigilance. Ambulatory clinics require regular reviews of activities, including monitoring of compliance with policies for ambulatory clinic procedures and infection control surveillance. Periodic education will be assessed through competency validation process and policy orientation to new employees, residents, faculty, and students.

Using the NPSGs as a framework for patient safety in the ambulatory environment, TARGET will be the key focus for patient safety. This mnemonic will remind all physicians, nurses, and clinical staff involved in the care of the patient, to identify the target and perform the steps required to achieve the surgical goal. The 2004 JCAHO NPSGs, developed to reduce medical error and focus on injury prevention strategies, primarily focus on hospitalized patients. The basic principles of the NPSGs have been summarized as patient identification, communication, medication safety, TARGET surgery, infusion medication safety, effective clinical alarm systems, and infection control for MCLNO ambulatory procedures.

The implementation strategy for educating physicians (including residents and fellows), nurses, clinical staff, and students on these procedures will include presentations at monthly departmental meetings, hospital unit meetings, and the quarterly clinic medical director's meetings. Additionally, the surgical attending physicians welcomed the opportunity to provide comments and recommendations regarding patient safety during this performance improvement process.

Residency program directors added the procedure summary to the list of competencies for residents during clinical rotations, and also cited that resident participation in this performance improvement team satisfied the resident's Accreditation Council for Graduate Medical Education (ACGME) competency for system-based practice.³ This accreditation enables the residents to develop an awareness of patient safety initiatives, and incorporate these ambulatory patient safety practices in their current clinical training and future medical practice. As an academic medical center affiliated with two medical schools and numerous allied health training programs, MCLNO must continue to focus on patient safety, due to its vital role in training the health care workforce in Louisiana.

As a public hospital serving largely indigent patients, the financing of administrative activities often results in a shifting of funds away from patient care areas. This initiative required no additional allocation of financial resources, beyond the series of bimonthly meetings held over an approximately 6-month period. The forms, policies, and strategies developed in this environment were done without hiring additional consultants. This strategy can be used by other organizations providing care for vulnerable populations.

MCLNO is the flagship hospital of the state of Louisiana's public hospital system. As the tertiary referral hospital for a system comprised of 10 hospitals with 2 academic medical centers, MCLNO is part of the fourth largest public hospital system in the United States. Successful initiatives from one hospital are shared with other members of the system. The best practices are displayed through a series of poster and oral presentations at the Louisiana State University Health Sciences Center's Annual Conference on Healthcare Effectiveness, where patient safety initiatives and disease management strategies are the primary focus. The standardized ambulatory clinic procedure information will be presented in this forum, so that other hospitals of the system may follow the same patient safety strategy.

Louisiana's public hospitals are accredited by JCAHO and are active in maintaining constant readiness with annual hospital directed JCAHO review sessions. This patient safety initiative will be highlighted during our annual review session at MCLNO, at which time we plan to present information regarding this patient safety process for use and/or implementation at each member hospital.

Discussion

Since the Institute of Medicine's landmark report, *To Err Is Human: Building a Safer Health System*⁴ highlighted the pervasiveness of medical error and its toll on human safety and life, many health care organizations have reviewed every step of their patient care processes to eliminate the patient's risk for morbidity or mortality as a result of health system error. Physicians recite some form of the Hippocratic oath, through white coat ceremonies and upon graduating from medical school, to do no harm in the care of the patients they serve. However,

their clinical schedules, practices, and systems may preclude the safe and effective practice of medicine.

Most studies that report on medical error are primarily focused on hospitalized patients. Medical error is responsible for longer lengths of stay, higher hospital costs, and significant patient morbidity and mortality.^{4,5} In the ambulatory environment, little data exists on medical errors. In many individual hospital data systems, data may be extracted regarding medical error by examining admissions following ambulatory procedures. Although the rates for admissions following ambulatory procedures at our institution are low, the relocation of procedures from the surgical suites and the 1-day stay unit to the ambulatory clinics could potentially increase the admission rates following ambulatory procedures. Once again, this potential patient safety risk served to guide the multidisciplinary team to review surgical procedures that are performed in the ambulatory clinics and surgical suites.

Patient safety strategies have focused on medical injury and medical errors.^{6,7} By reviewing patient outcomes, we can measure both medical injury and medical errors. However, these systems for reporting medical injury and medical errors focus on identification of the problem after harm or injury has occurred. We used the characteristics of an error focus strategy as outlined by Layde et al.,⁶ to implement the MCLNO ambulatory clinics procedure policy. Using the performance improvement team process, we were successful in involving all individuals in contact with the patient during an ambulatory surgical procedure. By focusing on injury prevention, the performance improvement team methodology was successfully used to study the problem, review all steps involved in ambulatory procedures, develop a comprehensive procedure summary for all levels of care at the organization, and achieve buy-in from all stakeholders by involving those stakeholders in the process.

This performance improvement initiative for ambulatory procedures may serve as a model for other health care organizations, or modified for the custom needs of the organization. By using the same technique to review surgical procedures and develop a patient safety program, we will develop a body of knowledge related to medical error in ambulatory environments. Consequently, health care organizations, health policy leaders, and patient safety researchers can develop and implement best practices to avoid medical error and maintain safe health care environments for patients. By using this health systems approach to patient safety, this organization will effect change across a broad spectrum of patients, impact medical training programs and educational activities at MCLNO and the Louisiana public hospital system in its entirety.

As additional procedures are included in the approved credential procedures, the organization now has a method to review these procedures and develop standards for performance in all areas of the hospital, including the emergency departments and ambulatory clinics. As the residency programs train residents and fellows in the performance of these procedures and allied health programs train students, MCLNO has a framework that may be exported to the hospitals where these physicians and other health care providers practice in the future.

Conclusions

MCLNO has demonstrated its commitment to patient safety at every level of the organization. Despite budget cuts in public hospitals throughout the nation and Louisiana, we have focused on patient safety and quality care through this initiative. This performance improvement team received widespread support from the administration, and the medical and clinic staff. The development of MCLNO ambulatory procedure patient safety indicators resulted in expanded educational opportunities on patient safety for the medical and clinical staff. This effort demonstrates that interventions targeted at urban environments may be effective with little additional resource allocation. The cooperative effort required between clinical departments to develop these guidelines is a framework to examine all activities in the ambulatory arena that pose a safety risk for patients.

Patient safety is central to health care provision in organizations and the responsibility of all staff who patients encounter in the hospital and clinic environment. Organizations must strive to develop effective systems so patients are provided safe, comprehensive care and have the necessary information to make informed decisions. Our organizational environment must be safe for patients to receive care, students and residents to learn, and providers to practice. The clinical expertise for patient safety developed through performance improvement projects, as illustrated, must be shared locally at the institution, with affiliated agencies, and at regional and national meetings. This and other patient safety initiatives will provide a body of evidence for future patient safety initiatives in the ambulatory arena until we reach the goal of elimination of near misses, medical errors, medical injuries and resulting morbidity and mortality from clinical encounters and clinical practice.

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